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Duodenal Ulcer in Children

Abdominal pain in children is not an infrequent symptom. Episodic attacks of this complaint lasting for only a short time and with no associated complaints or findings most frequently can be traced to a dietary indiscretion. Recurring attacks should, however, be given more attention by the family physician than a casual diagnosis of "interval appendix," food allergy, constipation, or mesenteric adenitis, for by such attention the presence of a duodenal ulcer will not be overlooked.

The incidence of this disease in children under the age of 14 is difficult to evaluate but has been conservatively estimated to be about 5%. If this supposition is valid it would suggest that duodenal ulcer should be given the attention these statistics point up in the differential diagnosis of this condition in this age group.

The most common symptoms of duodenal ulcer in children are abdominal pain, nausea, and vomiting, though the symptom complex seems to be dictated by the age of the patient. In the neonatal period the findings may be dramatic with melena, perforation, and death occurring with such rapidity the diagnosis is not suspected, or if suspected, before therapeutic measures can be started. Bleeding and pain are common at the 2-year level but beyond this age, bleeding becomes less frequent. In the older age groups, gastric upsets and abdominal pain become the most common findings. The pain in the abdomen may not be localized though not infrequently it is periumbilical or epigastric in origin. It may be described as a generalized ache and the child frequently obtains relief by lying with the thighs flexed on the abdomen.

Gastrointestinal disturbances of nausea and vomiting are usually associated with the abdominal pain. Nausea seems to be the more disturbing symptom because of the accompanying loss of appetite. There may be some weight loss and constipation. Vomiting is of the type usually associated with pyloric spasm and disappears when the stomach has been emptied.

A diagnosis of duodenal ulcer can be readily made by careful x-ray studies of the upper intestinal tract in these patients. Not all patients with these symptoms will show a typical niche defect of ulcer even though the duodenal bulb may be irritated, deformed, and exhibit a characteristic reaction to inflammation. These patients have probably either an active duodenitis or multiple small shallow mucosal erosions of such magnitude as to not be seen either on the screen or films on repeat examinations.

Therapy in duodenal ulcer in children will be dictated by the clinical course. Persistent bleeding, perforation, or stenosis will require surgical intervention. Those presenting the other symptoms can be treated by a conservative medical regime. If good co-operation can be obtained many of these ulcers will heal and the patient will become free of symptoms. Compliance with a careful therapeutic course may be difficult to obtain in children and this group will continue to have symptoms from their ulcer with x-ray evidence of continued activity upon repeated examinations.

This sequence of events suggests the possibility, and clinical histories seem to corroborate the impression, that many of the adult duodenal ulcers had their beginnings during childhood. This should stimulate a search for an accurate diagnosis in recurring abdominal pain, nausea, and vomiting in children and if duodenal ulcer is found, continued, careful, patient, understanding, and persistent treatment be given with the hope that these lesions can be cured. (Illinois M. J., Nov. 1952, F. K. Alexander)

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Gamma Globulin in Prevention of Acute Anterior Poliomyelitis:
Program Development

It was demonstrated during the past summer that children who received an inoculation of gamma globulin were less liable to develop paralytic acute anterior poliomyelitis, especially during the second and fifth weeks following such inoculation, than were children who received an inoculation of gelatin.

It therefore appears certain that until a more convenient or effective prophylactic becomes available there will be a demand for gamma globulin whenever poliomyelitis appears in a community.

An ad hoc committee of the National Research Council is currently considering the matter. Problems to be resolved are, among others: (1) cataloguing present supplies of blood and blood derivatives; (2) determining the supply of gamma globulin that should be in reserve for poliomyelitis prophylaxis, taking into consideration the many ramifications of the blood program; (3) specifying the "epidemic level" at which use of prophylaxis should be recommended and the age-groups which require protection in the face of an epidemic; (4) achieving a uniform reporting procedure for the disease; (5) specifying the dosage of gamma globulin to be recommended and determination of the minimum effective dose; and, (6) setting up channels for distributing gamma globulin.

As information develops, the Service will be informed. It is anticipated that sharp restrictions on the use of gamma globulin for poliomyelitis prophylaxis will become necessary in view of the limited available supply and potential demand. (Prev. Med. Div., BuMed)

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Change of Address

Please forward requests for change of address for the News Letter to: Commanding Officer, U. S. Navy Medical School, National Naval Medical Center, Bethesda 14, Maryland, giving full name, rank, corps, and old and new addresses.

The Treatment of Wringer-Arm Injuries

The term, "wringer arm," was first coined in 1938 to describe an accident occurring in early childhood in which the upper extremity is inadvertently caught between the rollers of a power-driven washing-machine wringer. In addition to 26 cases previously reported, 116 children with this injury have been treated at the Children's Medical Center, Boston, from 1937 through 1951.

Because the experience is terrifying to both the parent and child, over 80% of patients were taken immediately to a physician for treatment. On examination the arm is usually found to be diffusely swollen and ecchymotic in several areas. There may be many small abrasions, but there is seldom a laceration or avulsion of the skin. Because the initial examination is generally made shortly after the accident, the swelling and discoloration are rarely marked. This might lead the attending physician to underestimate the severity of the damage to the underlying structures.

During the first 24 or 48 hours after injury, a guarded prognosis should always be given. The temporary ischemia from the crushing is soon followed by regional edema of the damaged tissues. In the more extensive grades of injury, this is followed by an extravasation of blood beneath the fascia or skin. This collection of fluid elevates the skin so that on palpation a soft, floating type of fluctuance is found. When the fatty layer has been torn from its deep and superficial attachments a sensation of crepitus may often be elicited. Progressive tension of these tissues, enhanced by a slow seepage of blood from damaged vessels, may produce an ischemia of the overlying skin, particularly in the antecubital fossa. This can be followed some days later by cutaneous necrosis and sloughing. If increasing tension is not relieved surgically, a Volkmann ischemic contracture may be produced. Even though these wounds are reasonably clean, the injured skin is a good medium for bacterial growth. Every effort should be made to minimize infection. Much has been written about the so-called crush syndrome, which theoretically occurs when muscles are severely traumatized; in this series of wringer-arm injuries no renal dysfunction was observed.

In spite of the fact that severe injuries to the bones, nerves, or large vessels seldom occur, examination for and treatment of these must be borne in mind. Roentgenograms should be taken of the extremity in every case. Fractures of minor importance were discovered in 4 of 116 patients. There were 2 greenstick fractures of the humerus or clavicle and 2 linear fractures through the base of the first or fifth metacarpal bone.

A study of this material emphasizes the importance of hospitalization for at least 48 hours after such an accident, regardless of the initial appearance of the injured arm. During this time, periodic examination under sterile precautions permits the attending physician to recognize and release any collections of fluid beneath the skin.

In 70 patients no fluid collected; recovery was rapid and complete. In 23 other patients incisions for evacuation of subcutaneous fluid and blood were necessary to save the overlying skin from necrosis; in only 1 case did such an evacuation fail to save the over-lying skin. In 23 patients who were not seen or hospitalized during the first few days after injury, the failure to evacuate large subcutaneous collections of fluid almost invariably resulted in a slough of the damaged skin and subcutaneous tissue. When necrosis occurred, skin grafting followed by physiotherapy was necessary to restore satisfactory appearance and function. (New England J. Med., Nov. 13, 1952, D. W. MacCollum, W. F. Bernhard, and R. L. Banner)

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The Value of Travel

The author for many years has been writing a column concerning travel to various medical centers of America, Canada, and Europe. It occurred to him that an editorial on this subject might be of more value to young surgeons than a dissertation on the technic of some surgical procedure. It has been his experience that many of the young surgeons with whom he comes in contact are extremely well versed in the correct technic in performing a total gastrectomy or the advantages of silk or cotton but are handicapped by the inexperience of having done their studying and observing under one group of teachers. The long preparation required to secure an American Board membership is such a severe financial strain that the young surgeon has little time or money to spend on travel.

Once started on his career he often has heavy debts to pay, a family to raise, a home to be paid for, insurance, an office, a car, and many other obligations. So the years pass. He may attend an annual meeting of the state medical society or even become a member of one of the large surgical organizations, but too often he just sits and is content to perform an operation now and then, read a journal or two, and build up a practice.

In talking with many surgeons it seems to be a universal experience that the most valuable points they learn are not obtained from listening to a man speak, but rather from sitting and visiting with him or watching him at work. One may travel a thousand miles and yet acquire but a single valuable point in the performance of an operation; yet this one point may mean the difference between life and death for a patient, the difference between excellence and mediocrity for the surgeon.

Where should the young surgeon go? That would depend to some extent on the time available and his financial position. Those who have not been able to secure their Boards should certainly allow some time for postgraduate study, such as at the Cook County Postgraduate School or at Pennsylvania, Michigan, New York, or other institutions offering these courses. For shorter periods the clinics held by the Mayo, Cleveland, and Lahey groups, among

others, are of great assistance. Then one can go from coast to coast and everywhere find great surgeons and teachers, a few days' contact with whom cannot help but be an inspiration and stimulation to a young surgeon to go home and do better. Among the many visited with profit were Drs. Karl Meyer and Raymond McNealy, Chicago; Dean Sauer, the Bartletts, Evarts Graham, and Vernon Mastin, St. Louis; Henry Cave and Herbert Meyer, New York; Claude Hunt, Kansas City, Mo.; Alton Oshsner, Mims Gage, and Urban Maes, New Orleans; Emile Holman, H. Glenn Bell, and Robertson Ward, San Francisco; Gordon Fahrni and Lyon Appleby, Vancouver; Gavin Miller, Montreal; Robert Sanders, Memphis; Harry Bacon, the Jacksons, Wayne Babcock, and the Behrends, Philadelphia; Gordon Murray and Robert Janes, Toronto; Frederick Collier, Ann Arbor; William Kroger and Eric Larson, Los Angeles; Edward Churchill, Leland McKittrick, Richard Cattell, Samuel Marshall, and Frank Lahey, Boston; William Rienhoff, Baltimore; Everett Evans and I. A. Bigger, Richmond; T. C. Davison and Daniel Elkin, Atlanta; and James Hill and Michael De Bakey, Houston. These are but a small number of the many great leaders in surgery in this country and Canada who are more than willing to help the young surgeon.

In the author's experience the most enjoyable and the most instructive way to make such a surgical odyssey is with a group of fellow surgeons. Such a trip affords unusual advantages. If a program is requested and arranged weeks or months in advance, a great deal may be observed and learned from a brief visit. A rather intimate contact is made available to an entire staff, and the group itself may profit from its own social affairs and discussions. As a member of the Wisconsin Surgical Travel Club, a group composed of 12 members and 3 guests, it has been possible to visit most of the large medical institutions, schools, and hospitals on the continent not only once but in some instances several times. The profit, not only in medical knowledge but also in friendships established, has been immeasurable to all the members. A meeting is held once a year within the state at a different city each time, at which one of the members is the host.

In starting such a travel club a group of young surgeons might at first confine their travels to visits within their state and then gradually broaden their trips. With the remarkable developments in air travel one can easily foresee that a week's visit to Europe may well be contemplated in the near future. In this respect it may be said that European surgeons, long accustomed to visiting Americans, are most cordial and courteous to the visitor.

Without question, most older surgeons agree that an invaluable part of their medical training had been medical travels, and their only regret that they had not done more of it. (Am. J. Surg., Dec. 1952, A. S. Jackson, Editorial)

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Repair of Abdominal Hernia with Steel Cloth Implant

The high rate of recurrence of abdominal hernia suggests that the standard methods of repair are not satisfactory in all cases. Various surgeons have reported 10 to 50% recurrence rates after the usual methods of repair of inguinal hernia. Among persons over 50 years of age the recurrence rate for direct inguinal hernia is 38%; for indirect inguinal hernia, 30%.

The chief causes of recurrence of hernia are (1) closure of the abdominal defect under tension; (2) postoperative wound infection or hematoma; (3) postoperative cough; (4) attenuated or weak musculofascial tissues; (5) obesity, and (6) middle age.

Of these factors, wound tension is probably the most important. It is the one factor that the surgeon can control by the use of an implanted non-irritating fabric to occlude the tissue defect. Prompt and uncomplicated wound healing cannot occur when the wound tension interferes with adequate local blood supply. Tension is the enemy of good wound healing because it favors local necrosis and infection.

In recent years the availability of tantalum, glass, and stainless steel in the form of thin pliable fabrics has offered nonirritating materials that can be successfully employed as a "blow-out" patch in the repair of hernias without tension.

Large defects of the abdominal wall are seldom successfully repaired by the standard methods now in use. Fascial flaps and relaxing incisions often prove delusive in reconstruction of the abdominal wall. By their use the area of weakness is enlarged, local blood supply to the supporting structures is impaired, and recurrence of the hernia is common. Fascia and cutis grafts lack sufficient strength. They are not living grafts; wound infection is a common postoperative complication, and the hernia frequently recurs.

Tests in the surgical laboratory show that organic substances are irritating to animal tissues, are poorly tolerated, and tend to be extruded. Inorganic materials, such as glass and stainless steel, produce minimal tissue reactions and are relatively well tolerated. Ideal materials for implanting in healing wounds should conform with the following criteria: 1. Biologically nonirritating in tissues; of inorganic composition. 2. Easily sterilized and not altered by sterilization. 3. Chemically inert in tissue fluids. 4. Pliable, nonrigid, to adjust with local movement in tissues. 5. Strong, to withstand local stress and intra-abdominal pressure. 6. Non-electrolytic. 7. Workable, not subject to fragmentation in the tissues. 8. Readily available and inexpensive. 9. Nonhydroscopic. 10. Nonopaque to roentgen rays. Thin, fine-mesh annealed stainless steel cloth most nearly fulfills these requirements. Glass cloth is also a suitable implant material, though less desirable than steel cloth.

Secure closure of abdominal hernias can be made without wound tension by the use of a nonirritating implant of strong, thin, flexible stainless steel

cloth. The technic of steel cloth "blow-out" patch" repair is not difficult. It is indicated in the closure of large abdominal defects with widely separated musculofascial edges, for recurrent and incisional hernias, and for patients who have weak, attenuated, or inadequate musculofascial structures.

The present rate of recurrence following standard methods of hernia repair is too high. The chief cause of recurrence is the suturing of musculofascial defects under tension. Experience with 284 implant repairs of defects of the abdominal wall, including diaphragmatic and pelvic hernias, during the past 5 years is reported. Steel cloth implant repair of hernia offers a method of secure closure without wound tension and a better opportunity for permanent cure. (J. Internat. Coll. Surgeons, Oct. 1952, D. J. Preston)

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Surgical Fixation for the Fractured Hip

Experience has proved that the most conservative treatment for fractured hip in the aged is early surgical fixation of the fracture followed by early function. Mechanical fixation of the fracture temporarily restores continuity and security to the limb thus removing most of the pain, anxiety, disability, and functional upset. Postoperative care becomes primarily medical, for the many other degenerative lesions of the aged—atelectasis, pulmonary infarction, phlebothrombosis, and thrombophlebitis—are the chief postoperative complications and are best prevented by functional activity already made possible by the operative fixation. Sepsis is a rare complication and is reasonably well controlled by antibiotics when it does occur.

Clinical experience also demonstrates that the earlier the operation follows the trauma, the fewer the complications and the more certain is bone union to occur. In one series studied some years ago, delay of 1 week in surgical fixation reduced the number of successful unions from 90 to 65%. On operation later for nonunion in this group, the author invariably found the capsule intervening between fragments. The author believes that in the delayed unreduced case the capsule becomes fixed to the fragments.

It has taken many years to develop the concept of the value of surgical therapy for the fractured hip. It has come about through better pre- and post-operative care, new surgical approaches, and more effective mechanical fixation of the fracture. Other aids have been the recent advances in replacement of fluids and electrolytes before and after surgery, availability of blood in required quantities, and protein and vitamin therapy.

The treatment of fractures, particularly of the hip, has tended to centralize in medical centers and hospitals. Not infrequently, however, the aged and poor-risk patient is not sent immediately for fear he cannot tolerate surgery.

There is evidence in the author's clinical experience, demonstrated by similar results from various clinics, that surgical correction of fractures of the hip by internal fixation and early mobilization is not only feasible but

the safest and most conservative method of treatment. The aged tolerate surgery if supplied with competent pre- and post-operative care, fluids, and blood. The older the patient and the graver the risk, the earlier that preparation for surgery should be made and the earlier that the operation should be performed. Delay because of the poor condition of the patient usually leads to more serious complications. Preliminary traction and premedication with surgery within a few hours should be the aim. Any patient who was active at the time of the accident, should tolerate surgery well if done prior to complications. (Geriatrics, Nov. -Dec. 1952, C. E. Badgley)

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Pulmonary Cancer in Cytologic Smears

During the developmental period of cytologic technics for diagnosing pulmonary cancer in smears of sputum and bronchial washings it became increasingly evident that it is possible to determine not only the presence of cells exfoliating from malignant pulmonic tumors, but also to make approximately accurate estimates as to the type of new growth involved. The practical application of this observation is manifest: not only can the presence of cancer be detected definitely in a very large percentage of the cases in which it is harbored, but its type may also be recognized in 80% of these. This affords a basis for prognosis as well as diagnosis. Should a pulmonary carcinoma be detected and be believed to be secondary to a primary growth still situated elsewhere in the body, operation on the lung would be futile; on the other hand should it appear to be a primary type of relatively low-grade malignancy, operation would afford a chance of possible cure.

With these points in view a series of smears from 341 cases of pulmonary cancer were chosen for study. These included only those cases in which the laboratory diagnosis on smears was "class IV" or "class V" (fairly conclusive and conclusive evidence of malignant neoplasm, respectively) and in which sections of surgical or post-mortem material were available. They were selected from a series of smears of sputum and bronchial aspirates submitted to the laboratory during the past 7 years by several hospitals and physicians. Although a somewhat greater number of cases was available, only the first 5,000 were used as a source of material; these were generously supplied by the laboratory for use in this study.

The majority of the cases finally selected came from New York Hospital and Memorial Hospital. The series of smears thus set up was carefully studied and correlated with sections from surgical specimens or from specimens taken for biopsy from the actual tumors; any case in which the diagnosis from smears could not be checked against that on sections of tissue was forthwith discarded. The original diagnoses on the smears chosen

for examination and study were made by members of the staff of the laboratory and were almost invariably corroborated by Dr. Papanicolaou.

An investigation of 341 sets of smears of sputum and/or bronchial aspirates indicates that the type, as well as the presence of pulmonary cancer, can be determined by cytologic examination with an 80% degree of accuracy.

In the series there were 183 epidermoid carcinomas, 8 of them of esophageal origin; 65 pleomorphic carcinomas; 43 adenocarcinomas, 6 of them secondary to tumors of other organs; 41 anaplastic carcinomas (oat cell); 5 alveolar or terminal bronchiolar carcinomas; 2 bronchial adenomas; and 1 example each of malignant teratoma and fibrosarcoma.

Expressed in percentages of incidence, the representation of the various types of primary pulmonary cancer was as follows: epidermoid carcinoma, 53.5; pleomorphic, 20.2; adenocarcinoma, 11.1; anaplastic or oat-cell carcinoma, 12.5; bronchial adenoma, 0.6; alveolar or terminal bronchiolar carcinoma, 1.5; and fibrosarcoma and malignant teratoma, 0.3% each.

The percentages of accuracy of diagnosis for the various types were: epidermoid carcinoma, 89.9; pleomorphic carcinoma, 69.2; adenocarcinoma, 81.4 for all types, 78.4 for primary growths; anaplastic carcinoma, 83.5; and all other types, 0.

Smears of sputum have been found to present better evidence for the recognition of the various types than do those of bronchial aspirates. (Am. J. Path., Nov.-Dec. 1952, N. C. Foot)

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Newcastle Disease Virus in Man

Newcastle disease is one of the most important conditions affecting poultry throughout the world. It was recognized in chickens in the United States in 1941. The disease spread with damaging effectiveness, to become a major problem of the poultry industry in this country within a few years.

A few cases of Newcastle disease have been reported in man during the past 4 or 5 years. However, its potentialities did not become fully realized until recently. The evidence obtained suggests that this virus is capable of causing a systemic infection in human beings. Demonstration of virus in saliva, nasal discharges, and conjunctival sac washings indicates possibilities for human-being-to-human-being transfer.

Proof of human infection with Newcastle disease virus is difficult to establish. On several occasions, the specific virus has been isolated from human beings in the absence of a rise in serum hemagglutination-inhibition or neutralizing antibodies, as measured by the methods available. Investigators have not demonstrated an immunologic response in individuals from whom ND virus had been isolated. The discrepancy has been attributed in part to difficulties in technical procedures. Immunization records of one of

the authors' patients indicated that he had responded poorly to several immunogens in the past. In the cases reported, the history of exposure and somewhat uniform clinical course subsequently, with isolation of the specific virus during the illness, provides suggestive evidence for an etiologic relationship. Other reports support this view. A strain of Newcastle disease virus has been isolated from human lung tissue.

Conjunctivitis was the principal feature in 4 of the patients reported, and in all but 1 of those described. Cases 1 and 2 had ulcerations of the buccal mucosa. Evidence was lacking to suggest involvement of the lungs, gastrointestinal tract, or central nervous system. Isolation of virus from blood and urine indicates systemic dissemination which could afford opportunity for invasion of any tissue.

Newcastle disease may have potentialities for widespread dissemination in man, with resultant important significance to public health. Inapparent infection is a possibility (suggested by Case 2). A comment, made in 1946, by Dr. F. M. Burnet is appropriate, "From the human standpoint, the ancestry of Newcastle disease virus is of less importance than the possibility that it, or some similar virus, might on occasion find opportunity for human passage and by appearance and selective survival of appropriate mutants give rise to a new antigenic type of influenza."

During the week of Feb. 26, 1952, a brief survey was made of the personnel of a commercial firm engaged in making vaccine for the prevention of Newcastle disease in chickens. In the establishment 8 individuals have frequent opportunities for contact with active virus. One of them joined the other 7 about 2 weeks before. He was ill at the time of survey. This case had clinical features identical to those described. Newcastle disease virus was isolated from eye washings. Saliva, urine, and blood were negative. Within the past 8 months the other 7 persons had a similar illness. All of them consider infection with this specific virus to be expected in the course of their occupation. Proof of this is lacking at present, but the circumstances are suggestive and justify further study. (J. Lab. & Clin. Med., Nov. 1952, R. W. Quinn, R. P. Hanson, J. W. Brown, and C. A. Brandly)

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Intravenous ACTH in the Treatment of Allergic Diseases

The clinical and experimental use of adrenocorticotrophic hormone (ACTH) in the treatment of allergic diseases has been rather extensive since the first clinical ACTH conference in October of 1949 and particularly since ACTH became available for general use in 1952. The majority of reports on ACTH in the literature have been based upon its administration by the intramuscular route and until recently the conventional method has been intramuscular.

The first reports of the intravenous administration of ACTH were by Gordon and his associates in which it was estimated that the cortical response, measured by the increase of ketosteroid excretion and decrease in total blood eosinophils, was up to 20 times greater when ACTH was given intravenously rather than intramuscularly, dose for dose. Forsham, Renolds, and Lesh also reported substantial increase in the excretion of 17-ketosteroids after intravenous ACTH. Mandel and his coworkers reported on 25 patients, including 8 cases of allergic and collagen diseases, treated intravenously with 1 to 20 mg. ACTH for 8 to 12 hours, and concluded that the therapeutic results were "as good or even better, with only 1/10 to 1/20 the doses previously employed intramuscularly in similar cases."

This article is a report of the treatment of 60 cases of asthma, urticaria, and allergic dermatitis treated with ACTH intravenously alone or by a combined intravenous and intramuscular method. The study included 35 cases of asthma, 16 cases of urticaria and angioneurotic edema, and 9 cases of dermatitis, including atopic or neurodermatitis and contact dermatitis.

These patients were treated with ACTH administered intravenously either once daily, continuously for several days, or once daily combined with one daily intramuscular injection approximately midway (at midnight) between the daily infusions. The first advantage of this therapy was increased efficiency as manifested by a more rapid relief of symptoms and the clearing of the physical signs when the doses used were much smaller than usually given intramuscularly. The second advantage was the economy of its use. ACTH is relatively expensive when given in doses of 25 mg. or more intramuscularly every 6 hours. Whereas 10 to 12.5 mg. (most cases received 10 mg.) was the standard dosage used in this study for sake of consistency, it is highly possible that 5 mg. or even 1 mg. intravenously may be effective.

No attempt was made to gradually reduce the dosage of ACTH before cessation of therapy. Several patients, therefore, developed a post-treatment syndrome of exhaustion, manifested chiefly by weakness and lightheadedness 2 to 5 days after therapy was discontinued. These symptoms were readily controlled by cortisone orally in a gradually decreasing dosage of 25 mg. every 6 hours for 2 or 3 days, every 8 hours for 2 or 3 days, every 12 hours for 2 or 3 days and then once daily for 2 or 3 days.

The intravenous method is practical only for use in hospitalized patients, but once the patient is hospitalized, it is recommended that intravenous rather than intramuscular therapy be used. It is also recommended that an attempt be made to administer the ACTH by continuous infusion in severe or emergency cases for the period of the emergency after which the daily intermittent infusion or the combined intravenous and intramuscular method may be substituted.

It is further recommended that the sodium intake of the patient be reduced while receiving ACTH intravenously if heart or kidney disease or other diseases predisposing to electrolyte imbalance and edema are present,

if edema should develop during ACTH therapy, or if the patient gains an unusual amount of weight. Daily weight and blood pressure recordings should be made. Fasting blood sugar and blood sodium and potassium determinations should be carried out, if possible.

Intravenous or combined intravenous-intramuscular ACTH therapy is, in general, effective in the temporary relief of the allergic state. However, it is not a substitute for specific antiallergic diagnosis and therapy and the causative agent or agents must be eliminated. (J. Allergy, Nov. 1952, S. F. Hampton)

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Low-Dosage Irradiation in Amenorrhea

The favorable response of a selected group of amenorrheal women to low-dosage irradiation of the pituitary gland and ovaries is undisputed. Interest in such therapy, however, does not rest primarily on its therapeutic efficiency but centers on questions of its mode of action, safety, and of the possibility of its delayed effects on posterity. The physiologic basis for the apparent effectiveness of irradiation in secondary amenorrhea, as well as in the associated infertility, is presently inexplicable. None of the manifold theoretical explanations is susceptible of proof. Many investigators including the author, have subjected animals to similar irradiation and have failed to find morphologic changes, in the absence of which it is impossible to establish a relation of cause and effect.

Proper selection of patients and fixed low dosage assure the method's immediate safety. Late genetic sequelae have been imputed to low-dosage ovarian irradiation because of certain observations in animals. Recent studies, however, show that experimental data may not be relied upon to predict the occurrence of induced genetic changes in man. This thesis is supported by the fact that the quantity of x-rays administered to animals has been not only too large in comparison to the quantity administered in low-dosage therapy but also has been of the whole-body type. The latter technique makes it particularly difficult to collate experimental observations and clinical results.

The present report comprises an analysis of results obtained in 124 patients subjected to x-ray therapy because of secondary amenorrhea during the 15-year period, 1936 through 1950, from the author's private practice. The presence of only one ovary, adolescence, and the possibility of pregnancy was regarded as a contraindication to treatment. The necessity of avoiding conception until the 3 treatments have been completed was stressed. The compelling nature of this advice is illustrated by the single unfortunate administration of therapy during the early days of pregnancy which terminated in birth of a microcephalic child.

The technique employed included one treatment of from 50 to 80 r (air) per week for 3 consecutive weeks, the pituitary and ovaries being irradiated at each sitting.

In sifting the observations, it was found necessary to omit 34 patients: 4 for failing to complete the required course of treatment, 10 because of incomplete follow-up, and 20 for having had closely antecedent therapy. Sixty-four of the remaining 90 patients (71.1%) either attained cyclic menses for at least 1 year or achieved pregnancy following the treatment. No relation was apparent between the age of the patients (from 20 to 35 years) and their response. However, the degree of amenorrhea was noted to be an important factor, the cure rate being inversely proportionate to the length of the menstrual interval. The experiences recorded, moreover, emphasize the value of not initiating x-ray treatment until the patient has menstruated, either spontaneously or through artificial means.

Twenty-seven of the 90 patients became pregnant during the course of 1 year following x-ray treatment, 23 of whom gave birth to normal children at term. Three of the 27 pregnancies began without an intervening period, exemplifying the importance of examining patients who do not menstruate within several months of treatment.

It is averred that these data support the contention that low-dosage irradiation may be safely employed in properly selected patients and reaffirm its effectiveness in secondary amenorrhea, even though on an empiric basis. (Am. J. Obst. & Gynec., Nov. 1952, S. L. Israel)

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Egg Membrane for Chemical Injuries of the Eye

The delayed corneal healing commonly seen in chemical eye injuries is largely the result of continuous contact with the burned conjunctiva. In an effort to eliminate the injured conjunctiva as a toxic reservoir, a series of cases were treated with the immediate insertion of egg membrane between these 2 structures. Clinically, this method of treatment proved to be effective in preventing corneal destruction and in preserving the normal function and depth of the cul-de-sacs.

The exact technique for inserting egg membrane to cover the cornea and to separate the injured opposing conjunctival surfaces is presented. The egg membrane is nontoxic to the cornea. A review of the pathologic changes in chemical injuries of the eye is outlined and the sequelae are discussed. Twenty-six cases were treated with egg membrane with excellent results. Follow-up cases varied from 1 to 42 months. The function of only 2 eyes was lost. One of these injuries was caused by direct involvement with phenol (10.2%). The antidote for phenol is alcohol; in the eye, this type of counteraction is not feasible. Phenol is not soluble in water. The other eye, with a severe lime burn, was seen after 14 days.

Sequelae, such as corneal scarring, vascularization, ulceration, and recurrent irritability of the eye after long intervals, were reduced to a minimum.

Symblepharon was never encountered in cases treated early with egg membrane. In the late cases, egg membrane markedly suppressed the formation of adhesions. (Am. J. Ophthalmol., Nov. 1952, M. Croll and L. J. Croll)

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The V. D. R. L. Slide Flocculation Test for Syphilis

The introduction of cardiolipin antigen for use in serodiagnostic tests for syphilis had resulted in several new or modified flocculation tests. The value of these new tests is evident in their increasing acceptance as standard serologic tests for syphilis. One of these tests is the cardiolipin microfloculation slide test developed by the Venereal Disease Research Laboratory of the United States Public Health Service, and named the V. D. R. L. slide flocculation test for syphilis. This report is concerned with certain laboratory observations regarding the test and its clinical evaluation.

During a 10-month period 194 patients having positive reactions with the V. D. R. L. slide test and 2 patients with seronegative primary syphilis were observed. These patients were followed clinically and with serologic examinations at intervals of 1 to 4 weeks for periods of 3 to 9 months.

The V. D. R. L. slide flocculation test was employed as the routine serologic test for syphilis. The cardiolipin microfloculation antigen and buffered diluent were prepared and standardized by the Army Medical Service Graduate School. This cardiolipin antigen has a slightly different formula and a somewhat greater sensitivity than the antigen used by the Venereal Disease Research Laboratory. All serums with doubtful and positive reactions were titered through 1:64 dilutions. The serums were re-tested by a second laboratory. Consistent, close correlation of results existed between the 2 laboratories. Cardiolipin complement-fixation tests for syphilis employing the Kolmer technic were also performed on each of the serums.

The V. D. R. L. slide flocculation test for syphilis is technically adaptable for use in most clinical laboratories. As with other serologic tests, close attention to prescribed details of preparation of antigen, to maintenance of controls and to performance of the test is essential. A significant feature of the test is the ease with which reactions are read. One problem encountered in this study was the detection of "atypical" zonal reactions. Failure to detect such zonal reactions can be avoided by performing quantitative V. D. R. L. tests on all doubtful as well as positive serums. In those cases in which early active syphilis, particularly secondary syphilis, is strongly suspected or has actually been diagnosed by darkfield examination, serums should be titered regardless of the presence of a negative test in the undiluted serum. Occasionally undiluted serums of such patients will contain sufficient reagin to block reaction completely with the cardiolipin antigen.

The V. D. R. L. slide test has a high sensitivity and a specificity in keeping with the requirements of a standard serologic test for syphilis. The test is especially valuable as a presumptive test for syphilis. Simplicity of technic makes the test ideal for performance of large numbers of serologic tests in a short period of time.

The quantitative V. D. R. L. test should be regarded as diagnostic of syphilitic infection if positive in dilutions of 1:16 or higher. The biologic false-positive reactions most commonly encountered are rarely observed to be positive in dilutions higher than 1:2 and probably will seldom be positive in dilutions as high as 1:8. During the period of this study, 70 patients with vivax malaria were found to have negative V. D. R. L. tests. This would seem to indicate that this disease, known to produce biologic false-positive reactions frequently, results in positive V. D. R. L. tests in a very few instances. Other treponemal infections of man (yaws, bejel, pinta) can be expected to produce serologic titers in the V. D. R. L. test similar to those produced by syphilis.

The V. D. R. L. test should be performed in conjunction with at least one other serologic test for syphilis, preferably one employing a complement-fixation reaction. The Kolmer cardiolipin complement-fixation test is a satisfactory complementary test.

The quantitative V. D. R. L. test is useful in the follow-up of treated cases of syphilis. It is a sensitive gauge of the serologic response to therapy. In most instances where high-titer positive V. D. R. L. tests do not decrease within 3 to 6 months following therapy, the need for additional therapy should be strongly considered. In those instances where the V. D. R. L. test is positive only in low dilutions, no immediate decrease in titer can be expected.

There is indication that the V. D. R. L. test will detect reagin in the serums of individuals previously treated for syphilis who have been seronegative by other standard serologic tests for syphilis. For this reason the question of possible relapse in such patients having positive V. D. R. L. tests must be studied carefully, particularly if there is reliable evidence of adequate therapy. The exception is a V. D. R. L. test positive in high dilution of the serum.

The V. D. R. L. test should become most useful as a presumptive test for syphilis when employed in conjunction with such procedures as the treponemal immobilizing test. Studies by Nelson and his associates indicate that biologic false-positive reactors can be identified by this technic. Thus it would appear that the serodiagnosis of syphilis will come to depend on the use of a sensitive flocculation technic employing cardiolipin antigen for identification of positive reactors, with further identification as syphilitic or biologic false-positive reactors by the use of the specific treponemal immobilizing test. (Am. J. Clin. Path., Nov. 1952, LT. W. L. Eaton, MC, USA)

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The printing of this publication has been approved by the Director of the Bureau of the Budget, June 23, 1952.

Current Morbidity

The incidence rate for all causes among Navy and Marine Corps personnel in August 1952 did not change materially from July. The August rate of 406.7 per 1,000 average strength was only 4 per 1,000 higher than in the previous month. Disease conditions, with a rate of 344.8, showed an improvement of 5 per 1,000 from July while the rate for accidents, violence, and poisonings (61.9) was 9 per 1,000 higher than in the previous month.

The improvement in the rate for diseases was general for all conditions with only a few exceptions. A seasonal increase was recorded for poliomyelitis in August and a slightly higher rate also appeared for amebiasis. The largest increase was observed in the rate for diseases of the urinary and male genital system in August, 33 per 1,000 as compared to 19 in July. The increase can be attributed entirely to the revised requirement for reporting urethritis, nongonococcus, acute and chronic urethritis, acute and chronic, nonvenereal. BuMed Instruction 6222.1 dated 29 July 1952 required that individuals with these conditions be taken up on the sick list, even though no sick days are involved, and included with Class XIV, Diseases of the Urinary and Male Genital System.

The August rate for accidents, violence, and poisonings, 61.9 per 1,000 was the highest thus far in 1952. This rise is entirely due to the increase in battle injuries reported during August and accounts for one-fourth of the rate for conditions included in this class. It was observed that the number of battle injuries reported in August was twice as high as for any month since the first of the year. (Statistics of Navy Medicine, Nov. 1952)

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Air Pollution: A National Problem

Air pollution is a multiple problem involving public relations, engineering, good housekeeping, morals, economics, and politics. Air pollution is expensive, it damages homes, crops, and health. Contaminants may alter the normal life process and discolor and reduce the yield of the crops. Some pollutants sour the soil, throughout the years others may devoid an entire area of vegetation. Smoke damage each year costs Pittsburgh \$10,000,000, Cincinnati \$8,000,000, and Cleveland \$6,000,000. In all about \$100,000,000 a year is being spent in the United States on dust suppression methods.

Modern sanitary methods, while decreasing the community odors of the past, have proved largely ineffectual in controlling the compounds used or manufactured in industry. Because air cannot be rejected it becomes increasingly obvious that health is dependent not only upon the food and water ingested, but also on the quality of the air breathed. Because of this human effect, interest has been focused on problems of air pollution in various sections of the country. Atmosphere in growing population centers perversely

shows the same inability to dispose of a real waste as exhibited by polluted rivers and streams. These impurities include smoke, dust, fumes, gases, and the by-products of human activity. The source may range from the local factory stack or municipal dump to oil burners, incinerators, and automobiles. All are important. All create air pollution.

Poor visibility, grime, and smell are no longer welcomed as signs of economic wealth and well being. Disasters such as those in the Meuse Valley of Belgium in 1930, and Donora, Pennsylvania, in 1948, have focused public attention on air pollution and the danger which lurks in the haze. Mills reports that pollution of city atmosphere constitutes a health problem of the first magnitude and completely overshadows such factors as inadequate housing, overcrowding, and poor nutrition. Health-giving sunshine is lost, fogs intensified, buildings soot-streaked, clothing and furniture soiled, and lungs blackened. The attitude and the efficiency of the individual are impaired. The amount of ill health among people subjected to air pollution for prolonged periods is significantly greater than the amount of ill health among people living in areas relatively free from air pollution. Dorn believes that the deleterious effects of air pollution upon humans may be marked, and that much sickness caused by air pollution is erroneously attributed to a variety of diseases. That the state of health is involved can be attested to by the suffering public in smog-ridden areas. Running and burning eyes, repeated respiratory infections, chronic sinusitis, asthma, and chest diseases all are on the rise in polluted areas; and all graphically attest to the effects on the individual. Incidents of large numbers of people in various sections of the country becoming ill from inhaling toxic fumes are all too numerous.

Four areas of the United States are, at present, the principal targets and therefore the principal source of air pollution investigation and information. These are the Los Angeles-Pasadena area, the New York-New Jersey (metropolitan) area, Pittsburgh, and the Detroit area. All four have rapidly expanding civilian and industrial concentrations and are in areas conducive to persistent atmospheric inversion. All are located in districts having either a high relative humidity or an adjacency to river valleys or mountain barriers restricting the flow of air. In such areas, air pollution takes place to a depth of 30 miles, depending on wind and drift.

The control of air pollution is complicated by its complexity of cause. No longer is smoke control enough. Serious consideration must be given both to visible pollutants such as fly ash and soot, and to invisible pollutants such as nitrogen oxides, sulfur oxides, hydro-carbons, aldehydes, acids, and radioactive contaminants. Research shows a daily discharge of over 50,000 tons of various materials to be the principal cause of smog in Los Angeles County. Compare these 50,000 tons with a monthly average of 79 tons per square mile deposited in the New York-New Jersey (metropolitan) area! How such a huge daily atmospheric chemical reaction affects humans is a matter of serious conjecture.

Just where the medical profession fits into this picture is frequently a tender point with a slowly arousing citizenry. Right or wrong, there is a general belief that leadership in a problem so intimately connected with public health should develop among those most interested in its preservation: the doctors. It is heartening to report that in scattered areas throughout the United States the profession has already made significant contributions. Research in many of the problems is being actively conducted by local and national groups, as well as by public health teams from various states. A solution will come about only from a cooperative civilian and professional effort. How high public health is valued may dictate the course. In the meantime, the people, as they should, look to the medical profession on all levels, local, state, and national, to dedicate their efforts to the solution of one of the most pressing problems in public health that this nation has ever faced. (J. M. Soc. New Jersey, Nov. 1952, R. B. Marin)

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Warship Construction and Habitability

When a new ship is designed the Director of Naval Construction has to produce what is called a "Balanced Design." Not only has the ship to possess physical balance so that it floats upright and is stable but also reasonable proportion between numbers of conflicting requirements has to be maintained.

In both these senses of balance he must meet the object of Damage Control—"To maintain the offensive powers of the ship by anticipating and fighting the effects of damage. The essential purpose of a warship is to fight, and she must be able to do this not only when intact but also when damaged by the enemy." From these principles comes the Director of Naval Construction's determination to save dead-weight, space, and topweight, and to preserve watertight integrity; at the same time meeting the fighting and seagoing efficiency requirements required by several Admiralty Departments and Staff Divisions.

Dead-weight has to be saved in order to keep the reserve of buoyancy and to avoid overstressing the structure. That this is a serious matter is illustrated by the fact that nowadays cruisers, battleships, and aircraft carriers have to surrender compensating weight when additions are made. All ships grow at fairly well-recognized rates due to development of improved material which must be incorporated to keep them up to date. In one instance the weight of a ship has been growing at the rate of about 100 tons a year. It has been decided that her draught must be limited to a figure above which her structure is likely to work and become leaky in heavy weather.

Top-weight must be saved so that there is a reserve of stability to meet the capsizing effect of weather and enemy action damage. This has led to the decision that all ships must surrender compensating top-weight with equivalent leverage above the keel for all additions. When, therefore, the

medical officer of a ship thinks of a scheme whereby his sick-bay or its amenities can be improved he should realize that he must keep his requirements for additions to weight and claims on space to the absolute minimum because his requirements in these matters mean that his Commanding Officer must think of something else to be landed in compensation.

Watertight integrity is dependent on a system of compartments subdivided by watertight bulkheads and decks. The Director of Naval Construction would like this inviolate, but it is assailed on all sides by piercing for water, steam, and oil pipes; electric cables, doors, hatches, air trunks, and rod gearing to valves.

Merchant ships are generally subdivided by transverse bulkheads only and have a standard of Flotation termed "One Compartment," "Two Compartment" or "Three Compartment" according to the number of these compartments which can be flooded without immersing the edge of the freeboard deck. Warships limit sinkage and heel as well as trim due to damage by means of decks and in addition to transverse bulkheads, longitudinal bulkheads if the hulls are large enough to withstand the heeling moment caused by the flooding of one side. In addition to these they have refinements such as trunked access to compartments low down under the waterline which are manned in action.

In addition to a freeboard deck, as in merchant ships, warships possess a "Datum Deck," defined as that deck which is at least 8 feet above waterline. This fixes the position of the tops of the access trunks and helps to fix the "Risk Markings," of watertight doors, hatches, and scuttles. The largest warships have a system of side underwater protection for the vital parts, and armor to keep bombs and shells out of machinery spaces and magazines.

This intricate structure has now to be inhabited and habitability goes a long way towards making the ship sinkable; for example, wherever a ventilation trunk passes through a watertight deck it must be fitted with a slide valve so that by closing this valve it can be rendered watertight. If the deck so pierced is below the datum deck the valve mechanism must be geared, by means of rod gearing, for operation from a position above the latter deck. This gearing must, itself, pass through every deck down to the valve. A further example may be given—it is obvious that doors and hatches must be provided for access between living and working spaces. In this case watertight integrity is maintained, as far as possible, by strict refusal to pierce main bulkheads with doors below the datum deck. This leads to much climbing of ladders and waste of time, but it is preferable to providing easy channels for the passing of flood water. It is, therefore, of the utmost importance that ships' companies are drilled to observe watertight door discipline; after use, doors must be closed and clipped securely according to the prevailing damage control state.

From the topics discussed in this article there are certain lessons to be learned: (1) In ship construction the paramount need for watertight integrity is opposed by the requirements of habitability. (2) In normal ventilation the removal of foul air and its replacement by fresh air in the various types of

compartments in a ship require several different methods of forcing ventilation so that many compartments cannot make common use of trunks, et cetera, (3) In the case of ventilation under abnormal conditions the ship must be habitable from the Arctic to the Tropics without structural alterations. (4) The modern trend in the principles of ventilation in ships is to concentrate on avoiding a multiplicity of small systems. (J. Roy. Nav. M. Serv., Autumn 1952, T. Thorpe)

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The Blood Volume Expansion Produced by Gelatin,
Serum Albumin, and Plasma

This article compares gelatin, serum albumin, and plasma with the data obtained from a dextran study.

In order to obtain comparable results 500 cc. of 5% gelatin, 500 cc. of plasma, and 100 cc. of concentrated serum albumin were given over approximately the same length of time (1 hour). This amount of serum albumin is equivalent to 500 cc. of plasma. Twenty-six patients on the orthopedic service hospitalized for fractures, dislocations, chronic osteomyelitis, but otherwise in good condition clinically were selected. The blood volume was determined by a modification of the method of Hevesy and Zerahn using p^{32} labeled red blood cells and the changes in the blood volume determined by a method reported previously. Six patients received plasma, 7 patients gelatin, and 4 concentrated human serum albumin. In no case was any reaction noted. The previously reported dextran data are included.

A comparison of the blood volume expansion produced after infusion of gelatin, plasma, and serum albumin, using saline as a control has been studied.

Of the substances in this and the previous report dextran showed the greatest initial rise and the longest duration of effect.

With gelatin the magnitude and duration of effect was slightly less than with dextran.

Serum albumin acted differently than the others showing an early sharp rise, then a fall, and then a delayed but sustained rise to approximately the same maximum increase seen with dextran but occurring later.

Plasma showed the least effect as a plasma volume expander. (Surg., Gynec., & Obst., Dec. 1952, G. M. Hyde, N. I. Berlin, R. J. Parsons, and B. Whittington)

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Electron Microscopy of Enamel and Dentin

The application of the electron microscope to the study of dental tissues has been limited to interpretation of specimens derived mainly from the use of the replica technic. Detailed histologic studies with the electron microscope could not be undertaken until an acceptable method was developed for the preparation of ultrathin sections of 0.05 micra or less. Pease and Baker developed a technic for sectioning soft tissue to this thickness. In this investigation their method was applied to dentin and enamel.

Detailed histologic studies of dentin and enamel made with the electron microscope have been undertaken using the ultrathin sections. Micrographs of enamel reveal that the enamel rod is very irregular in outline, having processes that project between adjoining rods.

These processes when seen in the light microscope, usually are interpreted as being a cementing interprismatic substance. The cementing interprismatic substance is not demonstrated with the electron microscope. A distinct organic network is found with inorganic components within the enamel core. A definite organic rod sheath is found circumscribing the rod proper. This sheath is not uniform in density, nor is it uniform in continuity.

Studies on dentin show that the odontoblastic process completely fills the dentinal tubule without a definite separating membrane. No sheath of Neumann is seen. The dentinal matrix consists of ground substance in which are embedded the typical collagenous fibrils (cross bar striations spaced at 640 angstrom units) and vacuoles representing the inorganic constituents that are lost in the preparation of the specimens. (J. Am. Dent. A., Dec. 1952, S. Bernick, R. F. Baker, R. L. Rutherford, and O. Warren)

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Gastrointestinal Changes in Pneumoperitoneum

Pneumoperitoneum is of considerable value and has assumed an important position in the nonsurgical treatment of tuberculosis. The use of pneumoperitoneum has increased much in recent years, and in the Municipal Sanatorium of the City of New York it is the most common form of collapse therapy.

In a recent study of pneumoperitoneum complications by one of the authors, it was noted that approximately 60% of the patients lost weight. Associated with the weight loss were other gastrointestinal symptoms such as eructations, diarrhœa, abdominal distress, pain, belching, and nausea. These complaints usually persisted for only short periods. In an occasional case, there was severe pain or gastrointestinal disturbance.

Gastrointestinal complications have been referred to in many articles on pneumoperitoneum. Most of the authors consider these symptoms to be benign in character. Several investigators have associated the gastro-

intestinal complications in pneumoperitoneum with displacement of the abdominal viscera. The object of the investigation was to correlate the anatomic changes in the gastrointestinal tract as observed by radiologic examination with symptoms and disturbances arising from pneumoperitoneum.

A group of 37 patients with pneumoperitoneum had gastrointestinal studies performed immediately before initiation of therapy and again after 6 weeks and 6 to 8 months of collapse treatment. The typical anatomic changes which occurred with pneumoperitoneum included elongation and narrowing of the cardiac portion of the stomach, widening or dilatation of the fundus, anterior displacement, and a drop of the stomach. The factors which might influence these alterations have been discussed. The majority of patients lost weight with pneumoperitoneum. Other gastrointestinal symptoms were usually mild. There was little correlation between the symptoms which occurred with pneumoperitoneum and the degree of anatomic changes. (Am. Rev. Tuberc., Dec. 1952, I. D. Bobrowitz, F. Elias, and J. Ochs)

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Postoperative Analysis of 366 Consecutive Cases of Herniated Lumbar Discs

This report represents an analysis of 366 consecutive patients operated on for herniated disc from November, 1944 to July, 1950. These patients were selected from the private practice of the senior author. All operative procedures were performed by him with the exception of orthopedic procedures.

There are certain points in the diagnosis and management of patients suspected of having herniated discs that should be emphasized. Many patients are seen each year with low back and leg pain. Approximately 50% of these cases are regarded as probable herniated discs, of those diagnosed as probable herniated discs, 20% eventually came to surgery.

There is a history of trauma such as lifting, falling, twisting or direct injuries to the back in 70% of these cases. There are a certain number of cases in which no etiologic factor can be determined. Many times the patient will give a history of recurrent attacks of low back pain without any sciatic radiation. Later root pain develops with or without history of injury. The aggravation of pain with coughing, sneezing, and bending is a frequent complaint supplied by the patient without direct questioning by the examiner. As a rule, weakness is not a subjective complaint. Bladder symptoms are important in evaluating lesions associated with the conus medullaris or cauda equina. There may be a complaint of subjective sensory loss. The patient may describe this as a dead feeling in one of the toes or the side of the leg, depending upon which nerve root is involved. The pain may be so severe as to obscure or minimize any sensory loss recognizable by the patient.

Any recent infections or infections concurrent with the onset of the patient's difficulty should be evaluated. Also, the patient should be asked about toxic agents or metabolic diseases capable of producing mononeuritis. Neurologic examination is of utmost importance. However, it is never complete without a general physical examination which should include a recent x-ray of the chest in all cases.

The patient with a herniated disc will usually have a positive Lasègue's sign. The degree of discomfort produced by this test is dependent upon the size and location of the herniated disc. The paravertebral muscles will be rigid with ironing out of the normal lumbar lordosis. Often there is pain or tenderness to pressure at the multifidus triangle. Fibrositis may develop at this site and continue to be a source of discomfort for a short time postoperatively. The patient may complain of an aching sensation between the shoulder blades. There is often a list of the spine away from the side of the lesion if the disc is lateral to the nerve root, and toward the side of the lesion if the disc is mesial to the nerve root. Flexion of the back is usually limited. As a rule, hyperextension does not produce much discomfort. The ankle jerk on the affected side is diminished in about 50% of the lesions located at the lumbosacral joint. Decrease in the knee jerk is found with lesions located at L4 or higher in 18 to 20% of cases. Motor weakness usually involves dorsiflexion of the foot and toes or the evertors of the foot. It is essential that muscle strength in the lower extremities be tested and recorded preoperatively. The occasional herniated disc that produces subacute progressive paraplegia and constitutes an emergency is best observed and evaluated by frequent muscle-testing examinations. This does not include those cases in which there is acute complete extrusion of the intervertebral disc substance following an injury that produces acute paraplegia.

The sensory findings may vary from hyperesthesia to anesthesia. The value of the sensory examination depends on the persistence and experience of the examiner. This is particularly true in tumors of the conus medullaris and cauda equina whose only findings may be a sensory deficit in the saddle area. One of the most useful tests in the clinical examination is pressure with the examiner's thumb lateral to the posterior spinous process at the level of the lesion. This will reproduce or intensify the pain.

X-ray examination of the lumbar spine is most helpful in ruling out conditions such as spondylolisthesis, arthritis, fractures, tumors that produce bony erosion or destruction, spina bifida occulta, and other developmental anomalies. In patients who are known to have malignant tumors the authors believe that any involvement of the nervous system is caused by metastasis until proved otherwise. Narrowing of an interspace is not diagnostic of a herniated disc. However, interspaces narrowed posteriorly with normal spacing anteriorly are found in many cases of herniated discs.

The authors used myelography only in those cases in which a tumor was suspected. They think that the diagnosis of herniated disc should be

made clinically. They realize that tumors of the cauda equina and conus medullaris may simulate herniated discs. There were 22 cases of cord tumor in the lower thoracic and lumbar region during this time with symptoms involving the lower extremities. In their opinion routine myelography is unnecessary. The occasional untoward reaction following myelography and the added cost to the patient make the procedure undesirable if it can be avoided.

There were 228 male and 138 female patients in this series. The average age of these patients was 39.3 years. The youngest patient was 15 years of age and the oldest 70.

Diagnosis is discussed from the standpoint of history and neurologic examination. X-rays of the lumbar spine are of greatest value in ruling out tumors or anomalies involving the bony structure. The operative findings are presented with a discussion of some of the lesions that may not be properly dealt with. There are 5 lesions other than herniated discs producing root pain. The results in this series were good in 82%, fair in 15.2% and poor in 2.4%. Seven patients required reoperation and only 2 patients required fusion. (Am. J. Surg., Dec. 1952, P. Ross and F. Jelsma)

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Hexamethonium and Apresoline

Since the publication of the article by Paton and Zaimis, numerous authors have reported that hexamethonium and pentamethonium are useful therapeutic agents in selected cases of essential hypertension. Fries, Finnerty, Schnaper, and Johnson reported that the subcutaneous injection of hexamethonium bromide alone produced a remission of the malignant phase of the disease in 6 cases of hypertension.

Because the author has found that the effect of the subcutaneous administration of this drug is more constant than the effect of the oral administration, he now administers it only subcutaneously.

Apresoline (1-hydrazinophthalazine) is a compound which, according to Schroeder antagonizes such humoral pressor substances as hypertensin, serotonin, pherentasin, and norepinephrine. It is usually administered orally as the hydrochloride salt. Hexamethonium and apresoline may be administered concurrently in cases of essential hypertension.

In general, the author has been encouraged by the use of these drugs, particularly hexamethonium bromide, in selected cases of essential hypertension. The author cannot, of course, speak with any great authority because of the short time that has elapsed since the treatment was instituted. This report is decidedly a preliminary one. Subcutaneous administration of hexamethonium bromide produces a hypotensive response in most cases, and in many cases it causes marked postural hypotension with all its secondary, unpleasant effects. These effects usually persist for 3 or 4 hours, but become less noticeable as the injections are continued, even though the dose

may be increased. Although no instance of collapse after the administration of hexamethonium bromide has been observed, the occurrence of this reaction has been reported. Treatment consists of elevating the foot of the bed and exercising the lower extremities passively. If necessary, neosynephrin may be used instead of epinephrine or norepinephrine. Other untoward reactions such as blurred vision, dryness of the mouth, gastrointestinal disturbances, and urinary retention, can occur. Paralytic ileus has occurred as a sequel to severe constipation.

Apresoline hydrochloride seems to cause a milder hypotensive effect than hexamethonium bromide but in the reported cases the dosage was inadequate and the time too short to permit adequate evaluation. The usual side effects such as headache, palpitation, tremor, and anxiety can be diminished or abolished by the use of pyribenzamine hydrochloride and phenobarbital.

As yet no definite conclusions can be drawn regarding the results of the administration of these drugs in cases of essential hypertension. In most cases, however, they at least cause the hypertension to become labile rather than fixed. Obviously, this method of treatment has many disadvantages. Because many untoward reactions can occur, and because of the need for injection of the hexamethonium bromide by the patient, 2 or 3 times daily, these drugs would seem to be indicated only in cases of severe hypertension. Their use requires intelligent co-operation by the patient and frequent observation of the patient by the physician. It should be emphasized that no physician should undertake this form of treatment unless he has thorough knowledge of the manner of action of the drugs and the sometimes serious side effects that can occur. Each patient should be warned of the hazards of the drugs, especially hexamethonium bromide. The impression has been gained that the hypotensive responsive response produced by these drugs, particularly by hexamethonium bromide, is more satisfactory than that resulting from other available measures for the treatment of severe essential hypertension. (Proc. Staff Meet., Mayo Clin., Nov. 19, 1952, W. F. Kvale)

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Transduodenal Sphincteroplasty for Recurrent Pancreatitis

This article describes a surgical procedure which, it is believed, will permanently interrupt the function of the ampulla of Vater and reduce the effect of the duodenal wall on the intramural portion of the common duct. This procedure may have been previously reported, but no reference to it was found in the literature. The operation was devised for the treatment of patients with chronic relapsing pancreatitis and depends for its success on the presence of a common channel as the cause of the disease. The authors present some of the theories of etiology of the disease, various surgical procedures that are being employed in its treatment, a description

of the operation used, and a preliminary report of 5 cases on whom this operation was performed.

Although the etiology of pancreatitis is not clear, the weight of evidence at present favors the common channel theory as the best explanation in the majority of cases. Hypervagotonus may prove to be of significance.

Sphincteroplasty, the surgical procedure described, is a method of producing a more complete and permanent sphincterotomy. The authors believe that the simplicity of the procedure, the complete destruction of the ampullary function, the mucosa-to-mucosa approximation, the reduction of duodenal wall constriction on the lower end of the common duct, and the short period of T-tube drainage required are distinct advantages.

From the clinical and experimental evidence available, it seems advisable to remove the gallbladder in cases on which sphincteroplasty is done, whether the organ is diseased or not. This will be confirmed if the nonfunctioning gallbladders become diseased following sphincteroplasty.

Sphincteroplasty is applicable to any situation where there is an obstruction of the lower end of the common duct requiring sphincterotomy for its relief.

Vagotomy combined with sphincteroplasty may prove more successful than either procedure used alone in the treatment of chronic pancreatitis. When sphincteroplasty per se has been evaluated, the authors plan to combine the 2 procedures.

It should be strongly emphasized that the period of follow-up on the patients reported is inadequate for any final conclusions. This study is a preliminary report. (Ann. Surg., Dec. 1952, S. A. Jones and L. L. Smith)

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Medico-Military Training Program

Tentative plans have been completed to expand the third course for the Fiscal Year 1953 in Medical Aspects of Special Weapons and Radioactive Isotopes scheduled to convene at the U. S. Naval Medical School, National Naval Medical Center, Bethesda, Md., on 16 March 1953 into a 2-week training program in medico-military subjects.

The first week of this program will be devoted primarily to presenting problems likely to be confronted and techniques to be employed by medical department officers in the field of radiological activity. The subjects will be presented by speakers of outstanding prominence in their specialties.

The second week will be devoted to the practical aspects of medico-military matters, including, in addition to varied professional and related subjects, orientation in all phases of the Naval Reserve medical program. Portions of the program will be presented by prominent representatives of the Department of the Navy and the National Naval Medical Center; hence, it is assured that the presentations will be interesting and informative to all medical department officers.

Reserve MC, DC, MSC, NC, and HC officers residing in the 1st, 3rd, 4th, 5th, 6th, 8th, and 9th Naval Districts and the Potomac River Naval Command who desire to attend this course should submit their request for 14 days' training duty to the Commandant's Office at the earliest practicable date. The above named districts have been assigned a quota for this course.

It is desired to invite Reserve personnel's attention to the fact that acceptance of orders to attend this course WILL NOT, in any way, increase the possibility of call to extended active duty. Therefore, personnel concerned are encouraged to take advantage of the opportunity to attend this course. (Reserve Div., BuMed)

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From the Note Book

1. The December issue of the Marine Corps Gazette presents, in one of a series of official accounts dealing with Marine operations in Korea, an article describing the work done by the Medical Battalions and the Chaplains. The article is entitled "They Make Men Whole Again". It is recommended reading to all personnel interested in this phase of military operations. Editor.
2. Doctor Howard T. Karsner, Research Advisor to the Surgeon General, was recently honored by the International Society for Geographic Pathology when he was notified that he had been elected President of the American National Committee of that Society. The purpose of the Society is to bring together in one meeting the manifestations of a particular disease, common in various parts of the world, to compare them, and to arrive at some conclusions concerning their cause and nature. These meetings are held at irregular intervals. (TIO, BuMed)
3. The Michigan Medical Society, the Michigan Department of Health, and Michigan Division of the American Cancer Society have recently published a manual entitled, "The Story of Cancer for High Schools." Part One of the book contains information on the history of cancer, the nature of growth, the causes of cancer, distribution of cancer, early signs, means of diagnosis, treatment, research, prevention, and control. Part Two comprises aids and exercises which the teacher may find useful in fitting the subject of cancer into such high school studies as biology, chemistry, physics, home economics, and social science. The book stresses positive and accurate information which is presented without emotional emphasis. (Cancer Control Letter, 28 Nov. 1952, P. H. S.)
4. Military Justice in the Navy, a new officer correspondence course, is now ready for enrollment. This course is based on two texts: The Manual for Courts-Martial, 1951, the joint publication of the Armed Forces which

establishes regulations for the administration of the Code; and The Naval Supplement to the Manual of Courts-Martial, 1951, which contains regulations for all persons attached to the naval service. It is essential that all military personnel have a fundamental knowledge of the Uniform Code, its administration and regulations. This course will aid in clarifying the "new rules of the road". (Naval Correspondence Center)

5. A National Food and Nutrition Institute, during which this country's nutrition progress was reviewed and ways of strengthening nutrition programs were discussed, met in Washington, D. C., December 8-10, Joint sponsors of the conference, with the Agriculture Department, were the U. S. Public Health Service, and the Interagency Committee on Nutrition Education and School Lunch. Approximately 400 representatives of government and nongovernment agencies with responsibilities for various phases of current food and nutrition programs attended the sessions. (U. S. D. A.) 25 Nov. 1952)

6. The Second International Congress of Internal Medicine met in London 15-18 Sept. 1952 with 503 physicians from 30 countries in attendance. The meeting consisted of symposia on: The Sprue Syndrome; Idiopathic Steatorrhea and Coeliac Disease; The Clinical Importance of Disturbance of Fluid and Electrolyte Balance; Some Aspects of Neurotropic Virus Disease; and Antibiotics in Man. (O. N. R., London)

7. The estimation of potassium, sodium, and calcium by a method of internal standard flame spectrophotometric analysis is described in the Journal of Laboratory and Clinical Medicine, Nov. 1952, R. E. Bernstein, Johannesburg, South Africa.

8. A psychologic evaluation of 330 children with cerebral palsy and its implications in treatment will be found in the Journal of Pediatrics, Nov. 1952, E. Miller and G. B. Rosenfeld.

9. Postoperative wound disruptions are usually local manifestations of a generalized failure of the healing process in local factors, with the exception of infection, and are rarely of great significance. Mechanical strains may play a precipitating role but seldom are the basic cause. Deaths following wound disruptions are due to factors other than the disrupted wound. (Am. J. Surg., Dec. 1952, W. P. Kleitsch and D. W. Douglas)

10. A report reviewing the common malformations of the heart which can be diagnosed clinically and giving a number of hints concerning the diagnosis and general principles of management in children appears in Circulation, Dec. 1952, H. B. Taussig.

11. A case is reported in which gangrene of the forearm and hand developed following transfusion of the whole blood into the radial artery. (Ann. Surg., Dec. 1952, J. Yee, P. R. Westdahl, and J. L. Wilson)
12. An analysis of 658 cases of primary breech presentation, occurring from Jan. 1939 to Feb. 1949, is presented in the American Journal of Obstetrics and Gynecology, Nov. 1952, R. VanD. Knight, and C. P. O'Connell.
13. Dental symptoms are frequently the earliest clinical evidence of tumors of the maxillary sinus. (Oral Surg, Oral Med., Oral Path., Dec. 1952, C. A. Heatly)
14. The Public Health Service, of the Federal Security Agency, announces publication of "The Head Nurse Looks at Her Job," a manual for studying head nurse activities in hospitals. The publication offers a method by which hospitals of all sizes may determine how head-nurse time is distributed between management duties and duties which could be performed by less skilled nursing personnel. (F. S. A., P. H. S.)
15. Commander Bruce R. McCampbell, MC, USN was recently selected for a Fellowship in the American College of Surgeons.
16. A Survey of Hospital Requirements for Maintenance, Repair and Operating Equipment and Supplies conducted jointly by the Public Health Service and the American Hospital Association is now in the final tabulation stage. For the first time, detailed data on these requirements will be available. The survey will provide estimates of over 600 individual items and covers all requirements except those for federal hospitals and for equipping new construction. Almost 3,000 hospitals submitted survey schedules. (F. S. A., P. H. S.)
17. A study of vulvar fluorescence was made to consider the phenomenon of tissue luminescence as it applies to diagnosis and prognosis in normal and abnormal pregnancies. In addition, cases of hydatidiform mole, chorion-epithelioma, ectopic pregnancy, spontaneous, missed, and therapeutic abortion were examined under near ultraviolet illumination. (Surg., Gynec., & Obst., Dec. 1952, R. C. Benson and C. C. Chappel)
18. A total of 2,201 cases of scarlet fever and streptococcal sore throat was reported in the United States for the week ending 29 Nov. 1952. For the "disease year," which began with the week ending 9 Aug., a total of 21,416 cases were reported in the country as a whole. Of this total since the first of August, about 1,200 cases have occurred in 2 counties in Arizona, namely Maricopa and Pima. (F. S. A., P. H. S.)

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BUMED NOTICE 5215

26 Nov 1952

From: Chief, Bureau of Medicine and Surgery
To: All Holders of the Bulletin of Bureau of Medicine and
Surgery Circular Letters

Subj: BuMed Circular Letters; cancellation of several

1. The following BuMed C/L are cancelled 46-125; 48-86; 49-7; 49-84; 49-116; 49-142; 50-27; 51-7; 51-10; 51-13; 51-36; 51-67; 51-127; 51-134; 51-140. These letters have served their purpose, or are a matter of common knowledge or are covered by articles in the Manual of the Medical Department.

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BUMED INSTRUCTION 6320.4

2 Dec 1952

From: Chief, Bureau of Medicine and Surgery
To: All Stations having Medical/Dental Personnel

Subj: Hospitalization and subsistence rates for fiscal year 1953

Ref: (a) Art. 21-3 ManMedDept
(b) Art. 21-33 ManMedDept
(c) Par. 53225, BuSandA Manual
(d) Par. 41421-1, BuSandA Manual
(e) Par. 024194, NavComp Manual

1. This instruction consolidates and reissues current instructions regarding per diem rates, collected locally for in-patient medical care and subsistence furnished supernumerary patients and meal rates collected locally for rations sold authorized personnel for naval hospital messes. BuMed C/L 52-1 and 52-57 are cancelled.

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BUMED INSTRUCTION 6820.4

5 Dec 1952

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Stations having a Representative of the Medical
Department on board

Subj: Books, medical and dental; procurement of

Ref: (a) Catalog of Naval Shore Activities, OpNav P-213-105
(b) OpNav Inst. 7100.2

1. This instruction informs addressees of the procedure necessary in the procurement of professional and technical medical and dental books. Paragraphs 8 of BuMed C/L 52-15 and 10 of C/L 52-51 are superseded.

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BUMED INSTRUCTION 6750.2

5 Dec 1952

From: Chief, Bureau of Medicine and Surgery
To: All Stations

Subj: Dental outfitting material; procurement procedure

1. This directive describes the procedure to be followed in obtaining initial outfits of dental material, except prosthetic items, when submission of detailed requisitions is not practicable. Prosthetic items and material to expand existing dental facilities may not be procured by this means. BuMed C/L 52-2 is cancelled.

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AVIATION MEDICINE DIVISION



The Reserve Aviator

The age of pilots seemingly is a vital question in modern aviation. The physiologic and psychologic stresses and strains of modern aviation, most military and civilian authorities agree, are becoming so great and so complex that only the young can survive. There is also a present-day hysteria developing that only "superman" pilots will be able to go forward with the developments in jet aircraft, and will be able to cope with the problems of modern combat aviation.

Another concern is where the supply of "superman" pilots is to come from. The U. S. military establishment in the present day Korean conflict has been forced to recall to active duty many reserve aviators of World War II vintage, retrain them, and attempt to convert them into "superman" pilots to do the present-day job.

It is about these "old" pilots that this paper will concern itself.

Upon release from a tour of Korean combat duty in May, 1952, this flight surgeon, with the approval of the command of his naval carrier air group, circulated a questionnaire to all available pilots who had flown daily combat flights in the Korean area, for the purpose of a statistical study to determine the experience and the background of the air group's pilots. This project was undertaken because of the unusual composition of this air group, and because of the outstanding safety record that this air group had in the Korean area, as well as in its pre-deployment training phase in the continental United States.

Table I shows the disproportionate rank composition of the air group. The usual composition of a regular navy air group is one of a pyramidal rank structure with more ensigns (second lieutenants) at the base, and gradually decreasing in numbers in the ranks upwards to the apex. Table I also shows the pilot composition of the air group by type. Of the 106 pilots in this project, 22 were regular navy officers, 69 were recalled naval reserve officers, and the 15 ensigns were all reserve officers from the Naval Aviation Cadet Program.

The air group thus can be considered a "reserve air group." The 69 reserve aviators had all been organized naval reserve pilots, or the so-called "weekend warriors." Prior to being recalled to active duty, they had been flying with their respective reserve squadrons at their local U. S. Naval Reserve Air Stations, in the type of aircraft which they later flew in combat in the Korean area. These "weekend warriors" composed 2 jet fighter squadrons from New York, a propellor dive bomber squadron from Illinois, and a propellor fighter squadron from Colorado.

Table II shows the pilot attrition for the air group from its commissioning in the spring of 1951 through an 11-month period of training for combat and to the termination of the combat period in the spring of 1952. The breakdown of pilot attrition from all causes includes deaths, psychological problems where the pilot no longer wished to continue flying, accident injuries and physical illness which necessitated lengthy hospitalization and temporary removal from flying status for a period of time so that the pilot could not deploy for combat, or had to be evacuated from the forward area, and administrative removal from flying status by a Field Naval Aviators Disposition Board for reasons of low flying proficiency or violations of flight discipline.

Part (2) of Table II shows the pilot attrition for the air group during the Korean combat period. During these 5 months of combat flying, a total of 12 pilots were lost from the various causes. However, there were only 4 deaths, 3 as a result of enemy action, and 1 due to an operational accident.

During this Korean combat period, the air group flew a total of 5,728 sorties from an aircraft carrier compiling a grand total of 13,326.6 combat flying hours. This combat flying by the air group was accomplished under cold weather conditions with the sea water temperature averaging 40° F., and with Korea covered by snow. With these temperature conditions, 15

pilots were forced to ditch their aircraft at sea, 5 made land crashes in Korea, and 4 made parachute bail-outs. All but 1 of these pilots were successfully rescued without major injury, he having bailed out over water and was not recovered. Seven pilots sustained wounds from enemy anti-aircraft or gun fire, but all were returned to flying status after comparatively short grounding periods.

Part (3) of Table II shows the summary of pilot attrition for the air group during the 11 months of flying from commissioning, through the training phases, and the Korean combat period. The total of 17 pilots lost from all causes represents an outstanding safety record and a very high level of flying proficiency. Even the single fact of only 1 pilot death in 13,326.6 hours of single engine, carrier operational flying substantiates these statements.

In all fairness to these pilots, it must be stated that the mission they accomplished in the Korean area is equal to the performances of any other Navy air group that has operated in Korea. Let it not be said that these pilots were only safety conscious, and did not do the job.

The questionnaire that was circulated to the pilots of the air group attempted to cover the pilot's entire military and aviation career, also, his educational and occupational background, with the usual vital statistics.

Since the reserve "weekend warriors" composed two-thirds of the pilots of the air group and were its fighting core, the following is a narrative summary or an average of the statistics gathered from these 69 naval reserve aviators:

The average "weekend warrior" of this air group is a married 29-year-old lieutenant (USAF captain) who has 1 child. He had had 3-1/3 years of college, but has no academic degree in his majors of engineering or business administration.

This pilot has been on active duty in the Navy for about 4-1/2 years as an officer, after being an enlisted man for about 1 year. He was in the inactive reserve for about 1 year after release from active duty following World War II, then was in the organized naval reserve program for about 3 years prior to being called to active duty in 1951 because of the Korean conflict. During these 3 years in the naval organized reserve program, he flew a total of 267 hours at his local U. S. Naval Reserve Air Station. In his flying career, he has a total of about 1,660 hours flying in the Navy, and about 350 hours of civilian flying. Fifteen hundred hours of this time is in single engine naval fighter aircraft, and 140 hours in naval multi-engine aircraft. In his present jet or prop aircraft with this air group, he has about 400 flying hours, and made 70 landings aboard his aircraft carrier in the Korean area, but has a total of 143 carrier landings in his naval flying career.

During World War II, this aviator had 5 months of combat duty with 118 combat flying hours and 65 landings aboard various aircraft carriers. This pilot has earned 3 theater ribbons with 3 battle stars, and holds 3 combat aviation medals in his naval flying career.

During his 8-1/2 years of flying, he has had at least one major aircraft accident, due either to being hit by enemy gunfire or hitting a barrier on an aircraft carrier landing. He was never injured or hospitalized because of this accident.

This civilian-naval aviator has continued to associate himself with the Navy and its aeronautic organization because of his great interest in flying, and in the organized naval reserve program because of the monetary addition to his income. However, he is not interested in a regular Navy career, nor is he interested in continuous active duty as a naval reserve officer. Upon release from this 2-year tour of active duty in early 1953 he does intend to once again fly with an organized reserve squadron at his local naval reserve air station. While he remains on active duty during this tour, he would like to continue flying in single engine jet or prop fighter aircraft as an instructor in a training command, or with an active air group similar to this air group.

Now that this job is done, this reserve naval aviator is ready to return to his family and to his business or sales position, yet, still wanting to fly as a "weekend warrior" for the U. S. Navy.

Why do these "old" naval aviators want to continue to fly?

Why did they have such a low combat casualty rate?

What is to be the fate of the vast supply of reserve aviators that the U. S. military establishment now has from World War II? Can they, or how can they, be utilized if the United States becomes involved in World War III?

These are some most difficult questions to attempt to answer. It seems safe to conclude that the "weekend warriors" of this air group had a sufficient, strong motivation and love for flying, were mature pilots with vast flying experience and past combat experience, thus, could do a job well and safely when called upon. They are not young, "superman" pilots of today's modern and advanced aviation, but, maybe, they can keep up the pace with its advancement, if need be. (LT. Wayne L. Erdbrink, MC, USN)

Table I

| Pilot Composition of the Air Group | | | | | | |
|------------------------------------|--------|--------------|------------|------------|-----------|-------|
| RANK | Ensign | Lieutenant | | Lieutenant | | Total |
| | | Junior Grade | Lieutenant | Commander | Commander | |
| | 21 | 29 | 44 | 11 | 1 | 106 |
| Regular | 4 | 13 | 4 | 1 | - | 22 |
| Reserve | 2 | 16 | 40 | 10 | 1 | 69 |
| Aviation | | | | | | |
| Cadet | 15 | - | - | - | - | 15 |

Table II

Air Group Pilot Attrition

1. Pilot attrition from commissioning of the air group, through training to deployment for combat:

Pilot attrition from all causes

| | |
|-------------------|----------|
| Deaths | 2 |
| Psychological | 1 |
| Injury | 1 |
| Illness | 0 |
| Disposition Board | 1 |
| Total | <u>5</u> |

2. Pilot attrition for the Korean combat period:

Pilot attrition from all causes

| | |
|-------------------|-----------|
| Deaths | 4 |
| Psychological | 3 |
| Injury | 1 |
| Illness | 3 |
| Disposition Board | 1 |
| Total | <u>12</u> |

3. Summary of pilot attrition for the 11 months of training and combat flying:

| | |
|-------------------|-----------|
| Deaths | 6 |
| Psychological | 4 |
| Injury | 2 |
| Illness | 3 |
| Disposition Board | 2 |
| Total | <u>17</u> |

Nominations for Change of Duty Made During October-November 1952

Captain (MC) USN

Huber, P. A. from NAS, Los Alamitos, Calif. to NAS, St. Louis, Mo.

Commander (MC) USN

Bosee, R. A. (MSC) from NATC, Patuxent River, Md. to NPU, El Centro,

Lieutenant Commander (MC) USN

Brenner, A. W. from Inactive Duty to USS Badoeng Strait

Lieutenant (MC) USN

Wiley, H. P. from VC-61 to NAAS, Corey Field, Pensacola, Fla.

Durkan, G. P. from VX-3 to NAS, Akron, Ohio.

Bowers, J. A. from NAS, Akron, Ohio to VP-9

Rush, A. P. from NAAS Corey Field, Pensacola, Fla. to USS Siboney

Taylor, H. B. Jr., from MAW-2 to FASRON 102

Moline, D. W. from SAM to NS, Kodiak, Alaska

Ireland, R. G. from SAM to MAW-1

Tooley, W. H. from SAM to USS Point Cruz

Zwemer, T. W. from FASRON 11 to CAG-7

Luehrs, R. E. from CAG-7, hospitalized

Lieutenant (jg) (MC) USN

Nessel, J. H. from NAF Naha, Okinawa to VP-28

Hardy, S. I. from VP-28 to HS-2

Esterly, H. D. from SAM to NS Adak, Alaska

Evans, H. W. from SAM to VS-23

Green, Q. L. from SAM to VP-46

Bradley, M. H. from SAM to VP-931

Letson, W. M. from SAM to COMAIRPAC FFA

Bean, R. S. from SAM to Ut Wing Pac

Kelly, G. F. from SAM to Heavy Attach Wing Lant

Ferguson, J. J. from SAM to VS-24

Britton, J. H. from SAM to VS-27

Maciver, J. L. from SAM to VS-913

Ninow, E. H. from SAM to MAW-1

Compton, W. S. from SAM to MAW-1

Catlett, G. F. from SAM to MAW-1

Gregg, P. C. from SAM to MAW-2

Flagg, J. A. from SAM to MAW-2

Stephenson, H. G. Jr., from SAM to MAW-2

Waldo, R. F. from SAM to USS Rendova

Furlong, N. K. from SAM to MCAF, Camp Lejeune, North Carolina

Suchy, W. J. from SAM to NARTU, Lincoln, Nebraska

Parks, C. T. from SAM to NAS, Pensacola, Fla.

Wood, M. W. from VS-27 to NAS, Norfolk, Va.

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Defects Noted on SF-88's Submitted to BuMed
for the Months of October and November

| | |
|---|-----|
| Omissions | 342 |
| Excess copies | 829 |
| Lack of copies | 68 |
| Carbon copies not legible | 43 |
| Carelessness in recording results | 94 |
| Flight status not recorded (item no. 17) | 78 |
| Flight time omitted | 75 |
| Not fully explaining dental defects of NavCad applicants | 12 |
| Not recording C. E. R. and improperly placing pulse in spaces | 33 |
| Refractions not properly recorded | 15 |
| Not leaving right side in column 73 for BuMed endorsement | 32 |
| Failure to state aviator's service group in recommendation | 41 |
| No reason given for hospitalization | 8 |
| Not clarifying or going into enough detail regarding medical defects | 11 |
| Failure to mention disqualifying defects on SF-89 | 23 |
| Failure to submit SF-89 (Medical History Sheet) | 21 |
| Omissions on SF-89's | 64 |

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Standard Form 88

A conscientious and careful screening by the Flight Surgeon of all Standard Form 88's before submitting them to the Bureau is still the one most important factor in attempting to reduce unnecessary work load by all concerned.

In recent months a considerable number of flight physicals have been submitted on which the Flight Surgeon has noted that he considers the examinee as being "not aeronautically adapted" giving the reason for such statement that the aviator no longer desires to fly. Without more information this Bureau has been unable to act in many cases and has had to return the 88's to the field.

The Flight Surgeon should attach to the Form 88 a signed statement by the aviator to the effect that he no longer desires to fly and the reason for this decision.

It is suggested that the Flight Surgeon advise the examinee that if he desires to discontinue flying, he should submit through official channels a request for a change in designator.

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Flight Time

It is necessary from time to time for the flight surgeon to review his flight log to answer questions concerning his flight time. These questions frequently incur detailed accounting of the character of the flights logged.

There being no directive requiring the flight surgeon to maintain a detailed account of the character of flying performed as a special crew member, the individual flight surgeon frequently does not differentiate the character of flight in his log book. Thus VFR, IFR, day, and night flights are all entered in the log book as just "flight time" and not as "special time."

It is recommended that all flight surgeons and aviation medical examiners log the character of their flight time as the pilot does. This will eliminate "estimates" and "rough guesses" when the medical officer is questioned as to how much special flight time he has acquired during any certain period.

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NavCad Selection Tests

A memorandum containing information relative to the administration of Naval Aviation Cadet Selection Tests was recently sent to Flight Surgeons and Aviation Medical Examiners. This memorandum requested that medical officers disseminate the information and suggestions contained therein to all personnel under their command who are concerned with the administration, scoring, and transmission of the U. S. Naval Aviation Cadet Selection Tests. Receipt of and compliance with this memorandum should be forwarded to the Bureau of Medicine and Surgery, Division of Aviation Medicine, Attn: Code 537. It is requested that those medical officers who have not forwarded such receipts forward them at the earliest possible date.

Should additional copies of this memorandum be desired, they may be obtained from Code 537, Bureau of Medicine and Surgery, Aviation Medicine Division.

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CAA Certificates

There are still a few flight surgeons who are forwarding to the Bureau of Medicine and Surgery, Form 88's on applicants for CAA Second Class Airman's Medical Certificates that are not administratively eligible for this certification. The Bureau must necessarily return these forms to the examining physician.

It is to be recalled that the vast majority of those ineligible applicants require only a CAA Third Class Airman's Medical Certificate for the type of civilian flying they are currently doing. The Civil Aeronautics Administration does not want to issue a Commercial Pilot's Medical Certificate to those individuals.

All registered civilian physicians and medical officers of the Armed Services may complete a Standard Form 88 on the applicant for a student, solo, or private pilot's medical certificate and have the applicant forward it to the nearest appropriate regional CAA medical officer.

A CAA Second Class Airman's Medical Certificate is a certificate issued to holders of a Commercial Pilot's license. A CAA Third Class Airman's Medical Certificate is issued to those holders of a student, solo, or private pilot's license.

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Permit No. 1048

OFFICIAL BUSINESS

WASHINGTON 25, D. C.

DEPARTMENT OF THE NAVY
BUREAU OF MEDICINE AND SURGERY

PENALTY FOR PRIVATE USE TO AVOID
PAYMENT OF POSTAGE, \$300